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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/660,043	09/10/2003	Henry Esmond Butterworth	GB920020093US1	5777
7590	02/01/2006		EXAMINER	
IBM Corp, IP Law Dept 90A/9032 9000 S Rita Road Tucson, AZ 85744			DOAN, DUC T	
			ART UNIT	PAPER NUMBER
			2188	

DATE MAILED: 02/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/660,043	BUTTERWORTH ET AL.	
	Examiner	Art Unit	
	Duc T. Doan	2188	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status of Claims

Claims 1-22 are in the application.

Claims 1-22 are rejected.

Claim Objections

Claims 2,9,14,19 are objected to because of the following informalities:

As per claims 2,9,14,19 the recitation “a grain of data” does not have support in the disclosure.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

A person shall be entitled to a patent unless -

(a) the invention was known or used by other's in this country or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Claims 1-5,8-22 are rejected under 35 U.S.C. 102 (e) as being anticipated by Ohran (US 5835953)

As for claim 1, Ohran describes a storage apparatus operable as primary in a remote copy pair comprising: a remote copy component operable to establish a remote copy relationship between said primary and a secondary (Fig 3, circuits to provide and maintaining snapshots in the primary; Ohran's column 13 lines 30-33); a copy component operable at said primary to create a copy for download onto a portable physical storage medium for offline transport to said secondary for upload (Backup is made in conventional way, for example copying to a tape media for current data copy at time T0; Ohran's column 10 lines 30-42) ; a synchronization component for synchronizing data at said secondary with data at said primary using an online link in response to a request for synchronization from said secondary (circuits in the primary system to response to backup system request to initiate contact with a primary system; Ohran's column 12 lines 35-50); a metadata component operable to store a dirty state indicator of a portion of a storage space at said primary after establishment of said remote copy relationship at said primary (circuits to track storage locations that have new data written between time T0 and T1; Ohran's column 11 lines 20-36); and said metadata component being operable to limit synchronization at said secondary to said portion of storage having said dirty state indicator at said primary

(Ohran's column 12 lines 5-10 clearly describes only backing up the changing data blocks, and by minimizing the amount of updating data, backup time is drastically reduced).

As for claim 2, Ohran's describes wherein said metadata component comprises a bitmap and said portion of said storage space is a grain of data (backup map comprises Boolean entries indicating storage locations of new data; column 13 lines 15-25).

As for claim 3, the claim recites further operable as a secondary in a remote copy pair and comprising: a loading component for uploading said copy from said portable physical storage medium (Backup is made in conventional way, for example copying to a tape media for current data copy at time T0; Ohran's column 10 lines 30-42); a suppressing component for suppressing synchronization from a metadata component in said secondary (Ohran's column 12 lines 45-47, the backup system of the secondary contacts primary system to receive only that changes that have occurred); and a requester component for requesting synchronization of data at said secondary with data at said primary using an online link (Ohran's column 14 lines 45-53).

As for claim 4, Ohran describes wherein said online link comprises a storage area network (Ohran's describes changing data blocks are transported by LAN, WAN; column 10 lines 1-7).

As for claim 5, the claim recites wherein said copy component comprises a Flash Copy component (Ohran's clearly describes the point in time copy including keeping a snapshot of storage locations that have new data; column 10 lines 55-65).

Claims 8,13,18 rejected based on the same rationale as in the rejection of claim 1.

Claims 9,14,19 rejected based on the same rationale as in the rejection of claim 2.

Claims 10,15,20 rejected based on the same rationale as in the rejection of claim 3.

Claims 11,16,21 rejected based on the same rationale as in the rejection of claim 4.

Claims 12,17,22 rejected based on the same rationale as in the rejection of claim 5.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6-7 rejected under 35 U.S.C. 103(a) as being unpatentable over Ohran (US 5835953) and further in view of Kamvysselis (US 6941429).

As for claim 6, the claim recites a storage adapter card comprising a storage apparatus as claimed in claim 1. Ohran does not specifically describe circuits in the backup system residing in a card. However, Kamvysselis describes an intelligent adapter card capable of providing data copying and backing up functions (Fig 2: #117; column 4 lines 3-38). It would have been obvious to one of ordinary skill in the art at the time of invention to include the adapter card structures and functions as suggested by Kamvysselis in Ohran's system such that the backup functions are provided by the adapter cards, thereby the conventional data mover computers are eliminated and advantageously reducing foot-print in a data center (Kamvysselis's column 2 lines 17-30).

As for claim 7, the claim recites a storage virtualization engine comprising a storage adapter card as claimed in claim 6. It has been known in the art that storage virtualization has been employed in storage devices to provide the flexibility of sharing storage and migrating data particularly for sharing data among multiple hosts.

Conclusion

When responding to the office action, Applicant is advised to provide the examiner with the line numbers and page numbers in the application and/or references cited to assist examiner to locate the appropriate paragraphs.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Duc T. Doan whose telephone number is 571-272-4171. The examiner can normally be reached on M-F 8:00 AM 05:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mano Padmanabhan can be reached on 571-272-4210. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kevin L. Ellis
Primary Examiner

